

**The Effect of Household Characteristics on Household-Specific Inflation Rates: An Application to Trends in Child Poverty and Educational Real Wage Differentials**

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The Effect of Household Characteristics on Household-Specific Inflation Rates: An  
Application to Trends in Child Poverty and Educational Real Wage Differentials

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## Abstract

This paper investigates the effect demographic-specific inflation rates on the measured well-being of two population groups - families with and without children, and families with different educational attainment. Our major findings are (1) families with children generally experienced lower inflation rates between 1969 and 1985 than did families without children, yet calculated trends in child poverty are not significantly affected by the use of group-specific price indexes, and (2) inflation rates decreased monotonically with the education of the household head throughout this period, so that real education wage differentials (calculated using education-specific price indexes) widened more than nominal education wage differentials. This last finding indicates that the relative economic well-being of the less educated has declined by a greater extent than would be inferred from trends in nominal education wage differentials.

## I. Introduction

Household composition, in addition to prices and income, has been found to be an important determinant of household expenditure patterns. The number and age composition of children in the household, for example, have consistently been found to influence patterns of household demand, even when analyzing the consumption of fairly aggregate commodity groupings. The incorporation of demographic variables into analyses of consumer demand dates back at least to Barten (1964), who attempted to use the effects of household composition on demand to derive price elasticities from cross-sectional data. More recently, researchers have incorporated household composition into demand analysis as a means to estimate the cost of children and the allocation of household income between children and adults (Espenshade 1984, Deaton, et. al. 1989, Lazear and Michael 1988). Results from this research indicate that, in addition to the number and ages of children, the age, race and education level of the household head also influence expenditure patterns.

While the fact that demographic variables influence consumption patterns is interesting in its own right, this paper is concerned with one potential consequence of varying expenditure patterns. In particular, given that relative prices are typically not constant, variation across households in expenditure patterns might generate variation in the rate of inflation experienced across households. Thus, measuring price increases with an overall price index, such as the Consumer Price Index (CPI), will understate inflation experienced by some households, and overstate that experienced by others.<sup>1</sup> Suppose, for example, that relatively poor and less educated households spend a greater share of their budget on food

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<sup>1</sup> The need for individual price indexes might also arise if households face different prices for similar consumption bundles. In this study, however, we focus on differences in inflation arising only from differences in consumption patterns and use the same array of prices for all households.

than the average household and that food prices rise more rapidly than the prices of other goods. The actual distribution of purchasing power would then trend toward greater inequality than the distribution calculated from an average price index based on an average market basket of goods. Deflating an income series by the CPI would act, in this case, to understate trends in income inequality and poverty relative to what would be the case if income were deflated by group-specific CPI's that were based on group-specific expenditure patterns.

Much of the earlier work on group-specific price indexes focused on differential rates of price increase by income class (see Deaton and Muellbauer 1980, Chp. 7). More recently, Michael (1979) calculated household-specific price indexes using data from the 1960-61 Consumer Expenditure Survey and finds that although rates of inflation do vary with several household characteristics, the relationships are not consistent across time periods. Bridges and Packard (1981) construct a price index for elderly individuals using a market basket that more accurately measures the spending patterns of the elderly. They find that their calculated index increased somewhat more rapidly than the overall CPI during the 1970's.<sup>2</sup>

This paper addresses the effects of using group-specific price indexes, versus an economy-wide price index, on the measurement of certain social indicators. We focus on two trends that have received increased attention in recent years: trends in child poverty and trends in educational real wage differentials. The economic status of children has

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<sup>2</sup>Other applications include (i) the effects of variations in the cost of living across SMSA's on estimates of rates of return to schooling (Izraeli, 1983), and (ii) the effects of using inter-urban variations in cost-of-living to calculate the effects of real AFDC benefits on regional differences in the size of the AFDC population (Cloutier and Loviscek, 1989).

deteriorated substantially since the early 1970's. In 1990, 20 percent of all children lived in families with income below the poverty line. Thus any significant distortions in measured trends in child well-being due to the use of an inappropriate price index seem particularly pertinent at this time. The policy implications of these considerations arise on a macro level, as policymakers may be responsive to measured trends in child poverty, and on a micro level, given that eligibility for many transfer programs is income-based. Additionally, some transfers that benefit children, such as food stamps and Supplemental Security Income, are adjusted for inflation. We will assess the policy importance for child poverty of using group-specific indexes by using data from the Consumer Expenditure Surveys to construct a price index for families with children. We will then determine whether the use of an economy-wide price index leads to an under- or overestimate of the number of children living in poverty.

Another significant trend in well-being that has taken place over the past two decades is the marked increase in earnings inequality. This increase, in turn, has been driven in part by the rise in the returns to education (Katz and Murphy 1992). In particular, the relative earnings of more educated workers have steadily risen since the early 1970's. Thus we will also construct price indexes for families by the education level of the family head in order to see if overall education wage differentials overstate or understate trends in real educational wage differentials and hence changes in the welfare of families with different education levels.

In this study differences in price indexes between families will be based solely on variation in expenditure patterns, or market baskets, across these families. Whether these

observed differences in consumption patterns between specific demographic groups are sufficiently large to warrant the creation of separate price indexes for each group is an empirical question and one that we examine below.

The remainder of the paper is organized as follows. Section II discusses the calculation of the price index and the data used. Section III presents a descriptive analysis of estimated price indexes across household types. Section IV presents trends in child poverty rates using group-specific price indexes, and Section V presents trends in real wages by education level. Section VI concludes.

## II. Data and Methodology

The price index is fundamental in the construction of trends in well-being, such as real income and poverty rates. The poverty rate in a given year, for example, is calculated by comparing a family's income in that year to the official poverty threshold. This threshold was created in the mid-1960's and has been updated for inflation each year using the Consumer Price Index (CPI).

The CPI, however, is calculated based on the consumption patterns, or market basket, of the *average* urban household. Given that the prices of goods generally change at different rates, households with consumption patterns different from the average are unlikely to experience the rate of inflation indicated by the CPI.

The construction of any price index requires the application of an appropriate weighting scheme to an array of prices. The weights in this case represent the relative importance of an item in the consumer's budget. The Consumer Price Index, for example, is a Laspeyres

index:

$$I_{t,0} = \frac{\sum_i P_{it} Q_{ir}}{\sum_i P_{i0} Q_{ir}} \times 100 \quad (1)$$

where

$P_{it}$  is the price of item  $i$  in period  $t$ ,  $P_{i0}$  is the price of item  $i$  in period 0, and  $Q_{ir}$  is the quantity consumed of item  $i$  in base period  $r$ .

In practice, changes in the CPI from time  $t$  to time  $t+1$  are computed by multiplying, or updating, the expenditure on item  $i$ ,  $P_{it} Q_{ir}$  by the price ratio  $P_{it+1}/P_{it}$ . The index then is the sum of these item expenditures (at prices in  $t+1$ ) over the sum of the expenditures at prices in period  $t$ :

$$I_{t+1,t} = \frac{\sum_i P_{it} Q_{ir} \left( \frac{P_{it+1}}{P_{it}} \right)}{\sum_i P_{it} Q_{ir}} \quad (2)$$

Thus, the CPI is called a "fixed quantity" index because the quantity weights remain constant while the expenditure weights change as prices change.

Alternatively, if we define the expenditure weight for item  $i$  using base period prices as:

$$w_{i,0} = \frac{P_{i0} Q_{ir}}{\sum_i P_{i0} Q_{ir}} \quad (3)$$

then an index of price change from the base period to period  $t$  can be calculated as:

where the weights in the base period are normalized to sum to 1. Similarly, the price change



$$I_{t,0} = \sum_i w_{i0} \left( \frac{P_{it}}{P_{i0}} \right) \times 100 \quad (4)$$

from period  $t$  to period  $t+1$  can be calculated as:

$$I_{t+1,t} = \sum_i w_{it} \left( \frac{P_{i,t+1}}{P_{it}} \right) \times 100 \quad (5)$$

In order to apply weights,  $w_i$ , that reflect the current spending patterns of consumers the Bureau of Labor Statistics (BLS) revises the index every 10 to 15 years using expenditure weights from the most recent Consumer Expenditure Survey. Expenditures are divided into over 250 categories and the procedure outlined above is used to calculate the CPI.

The data we use to calculate expenditure weights and ultimately, price indexes, are from the 1960-61 Consumer Expenditure Survey and the 1972-73 Survey of Consumer Expenditures (CES). The 1960-61 survey contains fairly detailed information on the spending patterns of 13,728 families. The available public use tape contains expenditure data broken down into over 90 categories. We follow the procedure used in Michael (1979) and obtain data for 55 expenditure items covering approximately 95 percent of total consumption expenditures.<sup>3</sup> While the official CPI is calculated using expenditure weights from an urban subset of the 1960-61 sample, we use the entire sample in our analysis, as it is not possible to exactly identify the urban sample used by the BLS. The 1972-73 survey contains expenditure data for 19,975 families. From the Detailed Interview Survey, we use data on

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<sup>3</sup>Following Michael's reasoning, we did not include home purchase because of the extreme lumpiness of this expenditure. The discrepancy between the 90 CES items and our 55 items reflects the disaggregate nature of the CES data. Our expenditure item "women's clothing," for example, is the sum of four separate components of women's clothing listed in the CES. All but eight of the 90 expenditure types were incorporated one of the 55 items. No published price data were available for these remaining eight items.

over 1600 expenditure items to calculate 57 expenditure weights and a price index for each of the 9869 families surveyed in 1972. These 57 expenditure items, covering approximately 86 percent of total expenditures, were constructed to correspond to the 55 items from the earlier survey.<sup>4</sup>

We use data from both consumer surveys in order to match the construction of the actual CPI as closely as possible, which facilitates comparison between the two indexes. The BLS revised the CPI in 1964 by using weights obtained from the 1960-61 survey and again in 1978 by using weights obtained from the 1972-73 survey. We use weights from the 1960-61 CES to calculate price indexes for 1968-1977, and weights from the 1972-73 CES to calculate price indexes for 1978-1985.

After constructing weights for each expenditure item for each family, we then calculate an index for each family by applying detailed price data for each item, obtained from published BLS documents, to each expenditure weight<sup>5</sup>. The method described above was used to update the index each year. An effort was made to match the price item as closely as possible to the expenditure item (see Appendix 1 for a list of the expenditure items and the corresponding prices used). Although the CPI during most of this time period was relative to the base year 1967 (i.e., 1967=100), the limited availability of detailed price data

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<sup>4</sup> The fact that these 57 items account for less than 95 percent of total expenditure reflects the more detailed nature of the 1972 data and the difficulty in assigning each of the 1600 expenditure items to one of the 55 categories. The items "tuition" and "school books" were added to the total because price data became available for these items during the later years.

<sup>5</sup>For the years 1968-76 we used average annual price indexes for each item. These data were obtained from editions of the Monthly Labor Review. For the years 1977-85 we used an average of prices for "All Urban Consumers" in June and October of each year, since no annual average was published.

led us to create the earlier series using 1968 as the base year. Comparison between the two indexes can be made by examining the percentage change in each index from year to year. Figure 1 shows that on average, over all families, our index matches price changes in the actual CPI fairly well through 1977, and less so after that time.<sup>6</sup> A strict correspondence between our index and the CPI, however, is not necessary for the analysis that follows. Our interest lies in the difference between an "average" and a group-specific index. Some part of the difference between our group-specific index and the official CPI are undoubtedly caused by different methods of calculation.

### III. Price Indexes by Family Characteristics

Table 1 presents selected expenditure weights for families with and without children<sup>7</sup> and for families by the education level of the head. Families with children spend a somewhat higher share of their budget on food, clothing, home furnishings, and transportation. Most of these differences are statistically significant. More dramatic differences, however, are found across educational categories. Families for which the household head is relatively less educated spend a greater share of their budgets on food at

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<sup>6</sup>There are several potential explanations for why our price index does not increase as rapidly as the CPI during the later years. First, as noted above, we only capture 86 percent of total expenditure in the 1972 CES. Second, the BLS stopped pricing a few items after 1977. For the 1968-77 period, for example, the price of "clubs/hobbies" was proxied by the price of "film developing" while for 1978-85 it was proxied by the price of "photographic equipment and supplies." While the above factors may introduce error into our index, the most probable reason for the discrepancy between our series and the official series relates to the relatively rapid increase in the price of housing after 1977. Thus, our exclusion of home purchases as an expenditure item would cause our index to lag behind the CPI during these years.

<sup>7</sup>Families with children are defined as families with children under age 18 in the household.

home and food away from home. Additionally, more educated families tend to spend a greater budget share on entertainment and clothing. These findings with respect to the effects of children and education level on food and clothing expenditures are generally consistent with those found elsewhere (see Lazear and Michael 1988).

These results establish the necessary, though not sufficient, condition that differential rates of price increase for different commodity groups might generate variation in the rates of inflation experienced among families with and without children and among families that are headed by college versus high school graduates.

Table 2 reports our estimates of inflation experienced by specific family types, calculated as described above. The price index, hereafter referred to as PI, for families with children has remained consistently lower than the indexes for all families and for families without children.<sup>8</sup> (We also find that over the entire period prices have risen for black families with children by somewhat less than for white families with children.) In order to give some indication of the dollar differences these indexes generate, we have taken the mean income in 1985 of families with children (approximately \$28,000) and deflated this amount by each index. The resulting real incomes are found in the last row of Table 2. Using the overall index we obtain a real income of \$10,223, whereas using the index for families with children we obtain \$10,371. Thus, the small differences between the two indexes generates only a 1.4 percent difference in estimates of real income.

As with the differences in expenditure patterns, the most dramatic differences in the

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<sup>8</sup> Note that all prices changes are relative to the base year 1968, so that a higher index doesn't actually mean that prices from one year to the next have increased more rapidly, but rather is indicative of rates of price increase over the entire time period.

price index are across educational levels. Since the early 1970's, the PI for families whose head is a college graduate has remained below the index for families whose head is a high school graduate. After deflating \$28,000 by the index for more educated families, we obtain real income of \$10,496, a figure that is 2.7 percent higher than real income obtained using the overall index.

The differences between the PI for families with children and families without children represents the "gross" effect of children on the PI, and the effect we will use to determine the policy importance of using group-specific price indexes to calculate trends in child poverty. Nevertheless, we remain interested in how the index varies with other household characteristics, some of which may be correlated with the presence of children. Thus, by using a multivariate framework, we can determine the effect on the index of children "net" of other factors. We might also determine to what extent other variables are driving the observed relationship between children and the price index.

Tables 3.1 and 3.2 report regression estimates of the relationship between the PI and family characteristics. The dependent variable is the calculated PI for each household. The analysis is done for each year from 1969 to 1977 using the 1961-62 CES sample, and from 1978-85 using the 1972 CES sample. Observations with missing information were deleted from the samples. We use two different specifications to account for the the presence of children: (1) a dummy variable for whether the family has any children, as shown in Table 3.1, and (2) three dummy variables capturing the age distribution of the children (the omitted category is no children), as shown in Table 3.2. Panels (A) of Tables 3.1 and 3.2 present univariate results that roughly correspond to the patterns found in Table 2, namely the PI is

consistently lower for families with children than for families without children, and it is relatively lower over most of the period for families with young children.

Panels (B) of each table control for a number of additional family characteristics (see Appendix 2 for variable means). We now find that the effect of children on the PI reverses sign from negative to positive (except for the effect of all children in the family being older than six years, which remains negative but becomes insignificant). Note that in the full specification we have controlled for family size, so that the effect of children does not derive from the fact that households with children have more members. In Table 3.1 the PI for families with children is higher than that for families without children from 1975 onward. Thus, the results indicate that once we control for other family characteristics that may be associated with the presence of children, children serve to increase the price index. Further analyses revealed that the factor responsible for the negative univariate effect of children on the PI is the age of the family head. As the regression coefficients indicate, the PI for younger families is typically lower than that for older families, a finding that is consistent with the results of Bridges and Packard (1981), and younger families are clearly more likely than older families to have children under age 18 in the household.<sup>9</sup> When we characterize the presence of children by their ages, (Table 3.2) the results indicate that the positive effect of children on the PI derives solely from the effect of younger children, with the youngest

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<sup>9</sup>In order to further illustrate the effect of kids in families with different aged heads, price indexes were predicted for families by the age of the head using the coefficients from the regression for 1985 (Table 3.1) and the means from the 1972-73 CES sample. We then used this index to convert the \$28,000 mean income in 1985 to real income in 1968 dollars for families with different aged heads, with and without kids. These calculations indicate that real family income is lower by \$61.8 if the family head is 20 years old and kids are present, and by \$60.6, \$59.2, and \$57.5 if the family head is aged 30, 40, and 50, respectively.

children having the greatest impact. This result is consistent with the idea that younger children alter the family consumption bundle more dramatically than do older children.

Several of the other variables are also significant. The PI is higher for lower income families, a result that is consistent with earlier findings (Muellbauer 1974, Williamson 1977). Urban families experienced higher PI's through the early 1970's, but lower PI's from 1973 onward. These results for the early 1970's are similar to the effect of urbanicity found in Michael (1979). Finally, black families face lower PI's than nonblack families, a pattern that is consistent over the entire time period. Michael also finds that nonblack families experienced higher price changes over the 1967-1972 period.

As we mentioned above, for our calculations of trends in child well-being, our ultimate interest lies only with the average differences between the PI for families with children and those without children. We conclude from the results in Table 2 (and panels (A) of Tables 3.1 and 3.2) that over the period 1968-85 inflation increased less rapidly for families with children than for those without children. Thus, if we calculate "real" income using price indexes in Table 2 we would expect that poverty rates for children would be *lower* when using the group-specific price index than when using an average index. We address this issue in the following section.

#### IV. Child Poverty Rates

The percentage of children living in poverty has increased steadily since the early 1970's. In 1990, 20 percent of all children lived in families with income below the poverty threshold, compared with 14.2 percent in 1973 (U.S. Census 1992). Additionally, and

equally alarming, poor children have become poorer; the distribution of children below the poverty line has steadily shifted leftward over the same time period (Miller 1993). As mentioned above, the accurate measurement of the welfare of families with children is relevant to the implementation of policy. The price index also affects the updating of certain transfers that benefit children and the measurement of real income by which many families qualify for means-tested benefits.

Table 4 reports trends in child poverty rates calculated from the March Current Population Surveys and using the PI for families with children and the average PI for all families. The indexes were used to update the relevant poverty threshold for each family from its value in 1968.<sup>10</sup> The estimates in the first row for each year are calculated using the average PI for all families as obtained from the CES. The estimates in the second row are based on the average PI for CES families with children. Estimates in the last two rows use the characteristics of families in the CPS for that particular year. In order to calculate the poverty rate in the fourth row, for example, we use the coefficients from Table 3.2 to predict a PI for each family in the CPS. Thus each family's poverty threshold is inflated by a family-specific PI. For estimates in the third row, we average the predicted PI's over all CPS families and apply this "average" index to all families. The relevant comparisons, therefore, are between the estimates in rows one and two, and between those in rows three and four. The calculations based on the PI's predicted from the characteristics of the CPS families can be thought of as incorporating changes in the distribution of children across

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<sup>10</sup>We deflated each poverty threshold back to its 1968 value by using the ratio of the current year CPI to the CPI in 1968.



households and how this distribution has changed since the CES survey year. For example, the 1981 CPS estimates account for the increase in the percentage of children living in female-headed families between 1972 (the CES survey year) and 1981.

As noted above, we see that poverty rates for children calculated using the PI for CES families with children (row 2) are, as expected, consistently lower than the rates calculated using the overall PI (row 1). The differences, however, are never more than one-tenth of a percentage point. Thus, although price increases experienced by families with and without children are significantly different statistically, the magnitude of this difference seems insufficient to affect the measurement of child poverty in a way that is significant from a policy point of view. The results using the CPS samples are similar to the those using the CES, with one exception -- using an overall PI rather than family-specific PI's seems to understate child poverty in 1976. During the 1980's, however, using an average PI overstates child poverty rates. In general, the differences are quite small, although in 1981 the overstatement was about nine percent on average.

Although differences in inflation rates might not be sufficiently large to affect the measurement of poverty rates for children, the application of family-specific price indexes, as done using the CPS samples and coefficients from Table 3, may have more subtle effects on the distribution of income. Since our focus is on poor children, Table 5 reports alternative estimates of the distribution of children below the poverty line, using the overall versus the family-specific PI. As noted above, this is an important measure of child well-being, given that poor children have become poorer over time. The results indicate that using an average PI understates only slightly the percentage of children in poverty who live below 50 percent

of the poverty line. The difference is greatest in 1981 (.414 compared with .392). As with the results in Table 4, however, using the different indexes has only a modest effect on this measure of children's economic status.

Thus, although we documented statistically significant differences in the price index between families with children and families without children, the magnitude of these differences suggested that the effect of using an average versus a group-specific price index to calculate real income would be minimal. As expected, we find only small differences in estimates of child poverty using the two different indexes. On the other hand, the magnitude of the PI difference between educational categories suggests that the effect of using an average index compared with a group-specific index may be more pronounced for the measurement of real income by education class.<sup>11</sup> We examine this effect in the next section.

## V. Educational Real Wage Differentials

One of the most significant shifts that has occurred in the U.S. labor market since the mid-1970's has been the widening of earnings differentials between more- and less-educated males (e.g., between college graduates and either high-school graduates or high-school dropouts). Recent research has documented the widening of education-earnings differentials using a variety of data sets and measurement approaches (see, for example, Blackburn,

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<sup>11</sup> The declining relative earnings of families with less educated household heads might also contribute to a decline in the economic status of children if children were disproportionately concentrated in such households. Data from the Current Population Survey (Fuchs, 1986) indicate that in 1984, 25 percent, 37 percent, and 38 percent of all children lived in families in which the head of the household did not complete high school, completed only high school, and completed some or all of college, respectively. Note, however, that our analysis incorporates such effects.

Bloom, and Freeman 1990; Mincer 1991; Katz and Murphy 1992; and Juhn, Murphy, and Pierce 1993), and has also explored a variety of potential explanations for this shift.

In order to further investigate the impact on measured social trends of using group-specific price indexes, including the welfare implications for the groups in question, we will investigate the extent to which changes in overall education wage differentials correspond to changes in real educational wage differentials. If real educational wage differentials have increased by more (less) than nominal differentials, then the observed widening in nominal educational wage differentials understate (overstate) the decline in welfare of less educated individuals relative to those with more education.

Looking at the last two columns in Table 2, we see that high school graduates experienced higher rates of price increases than college graduates. Table 6 reports regression estimates of the relationship between price changes and the educational attainment of the family head. We see that prices increased more slowly for the more educated (with a monotonic increase with education level that is consistent across the years),<sup>12</sup> and that these patterns persist when we control for a variety of demographic factors.

In Table 7 we report estimates of real educational wage differentials as calculated from the CPS using an average price deflator, and education-group specific deflators. Panel (A) shows trends in real average weekly earnings by education group, where column (1) employs the average PI and column (2) uses the relevant educational-specific PI.<sup>13</sup> Panel (B) then uses these values to calculate patterns in relative earnings by educational group and

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<sup>12</sup>This result is consistent with Michael's finding (1979)

<sup>13</sup>The relative weekly earnings differentials reported in panel (B) correspond very closely to estimates based on hourly wages (see Murphy and Welch 1992, Table V, last column).

investigates how the calculation of real earnings differentials is affected by the use of group-specific price indexes. As noted in many studies, we see in columns (1) of Panel (B) that the returns to education have risen over time. Moreover, when we deflate these figures by group-specific indexes the calculated wage differentials are somewhat larger. For example, the real dollar difference in 1984 between weekly earnings for college and high school graduates is \$82.75 using an overall index and \$89.52 using group-specific indexes. The earnings difference between college graduates and those with less than a high school education increases from \$122.22 using the average index to \$133.34 using group-specific indexes.

Thus, while it has been well documented that the dispersion of nominal wages across education groups has increased since the early 1970's, our estimates using groups-specific price indexes reveal that the dispersion of real wages has increased by a somewhat greater amount. The relative welfare of the less (more) educated has decreased (increased) by more than nominal wages indicate. However, although the difference between the estimates using group-specific versus average indexes is greater for educational real wages than for child poverty, the educational results are still relatively modest.

## VI. Conclusions

This paper has investigated the distribution of inflation rates across different family types, with particular focus on the effects of these differences on the measured well-being of two populations - children and workers of varying education levels. We find that families with children experienced lower inflation rates than families without children over the period

1968-1985. Results from a multivariate analysis suggest, however, that children per se do not skew consumption patterns in the direction of commodity groups that have experienced less rapid price increases. Rather, this result follows from the fact that families with children tend to be younger on average than other families, coupled with the fact that younger families experience lower inflation rates. In fact, holding the age of the family head constant, children seem to alter consumption patterns in a way that produces relatively higher rates of inflation for families with children. Nevertheless, when we use group-specific price indexes to calculate trends in real income we find that the resulting estimates of child poverty are not significantly different from estimates obtained using an overall price index.

We additionally looked at the distribution of inflation by the educational attainment of the family head. We find a consistent pattern across the years of a monotonic decrease in the price index as the education of the family head increases, and that this result is invariant to controls for other attributes of the families in question. Using education-specific price indexes to calculate trends in real educational wage differentials, we find that the oft-cited increase in nominal educational differentials understates trends in real educational earnings differentials. Hence, the welfare of families with less education, relative to those with more education, has declined more than would be inferred from patterns in nominal educational wage differentials. The average annual earnings difference in 1984 between college educated workers and workers without a high school diploma, for example, was \$6356 using an overall index and \$6934 using a group-specific index. Thus, using an overall price index to deflate earnings underestimates the earnings difference between these two groups by about 10 percent.

While we do find that the rate of inflation varies across household types, these differential rates of price increase are not large enough to generate substantial differences between real income calculated using an average versus a group-specific index. We should reiterate, however, that our method of calculating separate indexes relies solely on variation across family types in expenditure shares. It is almost certainly the case that different families also face different prices for similar goods. Nevertheless, the evidence at this point does not warrant replacing the CPI with group-specific price indexes.

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Table 1: Selected Expenditure Weights for Families

	<u>With children</u>		<u>Without children</u>	
	1961	1972	1961	1972
Food at home	.237	.217	.222	.213
Food away from home	.046	.047	.058	.046
Rent	.061	.084	.092	.134
Interest on Mortgage	.030	.049	.012	.016
Clothing	.096	.082	.067	.062
Home furnishings	.055	.055	.045	.044
Private Transportation	.131	.199	.109	.181
Entertainment*	.036	.030	.030	.024
	<u>Head's education is high school or less</u>		<u>Head's education is some college or more</u>	
Food at home	.241	.238	.187	.169
Food away from home	.050	.043	.058	.054
Clothing	.080	.063	.087	.079
Entertainment*	.030	.022	.043	.037

Source - Consumer Expenditure Surveys: 1960-61 and 1972-73.

NOTES: \*Includes spectator admissions, participants sports, clubs dues and reading.

1. All differences between families with children and families without children for the same year are significant at the 5 percent level. The only insignificant differences are "Food at home" and "Food away from home" in 1972. All differences by education of the family head are also significant at the 5 percent level.

**Table 2: Price Indexes for Demographic Family Groups**

Year	All	With Kids	No Kids	Black, With Kids	Non Black, With Kids	Head of family is a high school graduate	Head of family is a college graduate
1969	104.88	104.91	104.86	104.81	104.92	104.93	104.94
1970	110.43	110.36	110.50	110.17	110.38	110.47	110.55
1971	114.58	114.23	114.95	114.02	114.26	114.52	114.63
1972	118.16	117.66	118.70	117.61	117.66	117.96	118.03
1973	126.12	125.63	126.65	126.05	125.59	125.58	125.22
1974	140.40	140.01	140.83	140.27	139.98	139.61	138.43
1975	152.06	151.50	152.68	151.71	151.48	151.05	149.63
1976	160.67	159.74	161.68	159.71	159.74	159.68	158.26
1977	170.27	169.05	171.59	168.98	169.06	168.99	167.25
1978	179.86	178.12	181.26	178.00	178.13	178.84	175.42
1979	198.42	196.60	199.88	195.34	196.75	197.48	192.50
1980	221.65	219.71	223.19	216.63	220.07	220.75	214.57
1981	239.43	237.24	241.18	234.02	237.61	238.27	231.58
1982	249.61	246.72	251.92	244.44	246.99	248.05	241.70
1983	256.21	253.00	258.77	251.28	253.20	254.65	248.56
1984	265.08	261.39	268.02	260.29	261.52	263.24	257.38
1985	273.88	269.96	277.02	268.88	270.08	272.07	266.76
\$28,000	10,223	10,371	10,107	10,413	10,367	10,291	10,496

NOTES: (1) Calculations are based on expenditure weights for consumer units from the CES (CES 1960-61 for the years 1968-77 and CES 1972-72 for the years 1978-85). Price data for 1969-85 were obtained from the Monthly Labor Review. See section II for a description of the methodology. (2) All inflation rates are relative to the base year 1968. (3) The last row converts \$28,000 in 1985 dollars to real 1968 dollars using each corresponding index (a value of \$10,223 is obtained using the overall index).

Table 3.1: Regression Estimates of the Effect of Children on the CPI

	1969	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985
Panel (A)																	
Kid	0.05 <sup>a</sup> (0.01)	-0.14 <sup>a</sup> (0.03)	-0.72 <sup>a</sup> (0.03)	-1.04 <sup>a</sup> (0.04)	-1.01 <sup>a</sup> (0.06)	-0.83 <sup>a</sup> (0.09)	-1.18 <sup>a</sup> (0.11)	-1.94 <sup>a</sup> (0.12)	-2.54 <sup>a</sup> (0.14)	-3.14 <sup>a</sup> (0.24)	-3.28 <sup>a</sup> (0.30)	-3.48 <sup>a</sup> (0.40)	-3.94 <sup>a</sup> (0.46)	-5.19 <sup>a</sup> (0.46)	-5.77 <sup>a</sup> (0.45)	-6.63 <sup>a</sup> (0.47)	-7.06 <sup>a</sup> (0.47)
Panel (B)																	
Kid	0.03 (0.02)	-0.05 (0.04)	-0.23 <sup>a</sup> (0.06)	-0.19 <sup>a</sup> (0.07)	0.13 <sup>d</sup> (0.09)	0.56 (0.13)	0.66 <sup>a</sup> (0.16)	0.31 <sup>c</sup> (0.18)	0.54 <sup>a</sup> (0.21)	1.37 <sup>a</sup> (0.33)	0.74 <sup>c</sup> (0.43)	0.83 (0.58)	1.18 <sup>c</sup> (0.67)	1.56 <sup>b</sup> (0.68)	1.40 <sup>b</sup> (0.67)	1.59 <sup>b</sup> (0.69)	1.55 <sup>b</sup> (0.71)
Age x100	2.29 <sup>a</sup> (0.26)	3.54 <sup>a</sup> (0.51)	-0.03 (0.69)	-0.72 (0.87)	0.92 (1.10)	3.53 <sup>b</sup> (1.65)	-0.99 (1.98)	-4.19 <sup>c</sup> (2.21)	-8.89 <sup>a</sup> (2.62)	19.79 <sup>a</sup> (3.77)	27.87 <sup>a</sup> (4.92)	38.74 <sup>a</sup> (6.60)	36.72 <sup>a</sup> (7.64)	27.21 <sup>a</sup> (7.71)	22.22 <sup>a</sup> (7.56)	17.42 <sup>b</sup> (7.82)	11.53 <sup>d</sup> (8.01)
Age <sup>2</sup> x1000	-0.20 <sup>a</sup> (0.03)	-0.27 <sup>a</sup> (0.05)	0.20 <sup>a</sup> (0.07)	0.44 <sup>a</sup> (0.09)	0.64 <sup>a</sup> (0.11)	0.76 <sup>a</sup> (0.02)	0.15 <sup>a</sup> (0.02)	1.84 <sup>a</sup> (0.22)	2.76 <sup>a</sup> (0.26)	0.95 <sup>a</sup> (0.38)	0.21 (0.49)	-5.18 (6.62)	0.06 (0.77)	1.38 <sup>c</sup> (0.77)	1.59 <sup>b</sup> (0.76)	2.34 <sup>a</sup> (0.78)	2.73 <sup>a</sup> (0.80)
Finc x10	0.12 <sup>a</sup> (0.02)	0.18 <sup>a</sup> (0.30)	0.10 <sup>a</sup> (0.04)	-0.12 <sup>a</sup> (0.05)	-0.92 <sup>a</sup> (0.06)	-1.79 <sup>a</sup> (0.10)	-2.26 <sup>a</sup> (0.11)	-2.01 <sup>a</sup> (0.13)	-2.59 <sup>a</sup> (0.15)	-0.29 <sup>a</sup> (0.08)	-0.42 <sup>a</sup> (0.10)	-0.46 <sup>a</sup> (0.13)	-0.64 <sup>a</sup> (0.15)	-0.72 <sup>a</sup> (0.16)	-7.50 <sup>a</sup> (0.15)	-8.16 <sup>a</sup> (0.16)	-0.81 <sup>a</sup> (0.16)
Fsize x10	0.17 <sup>a</sup> (0.05)	0.05 (0.11)	-0.42 <sup>a</sup> (0.14)	-0.21 (0.18)	2.17 <sup>a</sup> (0.23)	4.21 <sup>a</sup> (0.34)	4.77 <sup>a</sup> (0.41)	3.41 <sup>a</sup> (0.46)	4.18 <sup>a</sup> (0.54)	3.33 <sup>a</sup> (0.90)	4.50 <sup>a</sup> (1.17)	3.40 <sup>a</sup> (1.58)	3.63 <sup>b</sup> (1.82)	1.39 (1.84)	-1.58 (1.81)	-2.77 <sup>d</sup> (1.87)	-5.40 <sup>a</sup> (1.91)

NOTE: Panel (A) reports simple regressions which additionally include a constant - parameter estimates are listed with standard errors in parentheses. Superscripts a,b,c,d denote significance levels of 1%, 5%, 10%, and 15% respectively. Panel (B) reports select estimates - all years additionally include a constant, three region dummies, an urban dummy, a dummy for black, three educational attainment dummies, and a dummy for female headed households. Variable are defined as: Kid=1 if there are kids in the household, age=age of household head, Finc=family income, and Fsize=family size.

Table 3.2: Regression Estimates of the Effect of Children on the CPI

	1969	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985
Panel (A)																	
AU6	-0.06 <sup>a</sup> (0.02)	-0.30 <sup>a</sup> (0.04)	-0.73 <sup>a</sup> (0.06)	-1.15 <sup>a</sup> (0.07)	-1.67 <sup>a</sup> (0.09)	-1.95 <sup>a</sup> (0.14)	-2.19 <sup>a</sup> (0.17)	-2.68 <sup>a</sup> (0.19)	-3.22 <sup>a</sup> (0.23)	-5.69 <sup>a</sup> (0.39)	-6.38 <sup>a</sup> (0.50)	-6.57 <sup>a</sup> (0.66)	-6.85 <sup>a</sup> (0.76)	-7.38 <sup>a</sup> (0.77)	-6.89 <sup>a</sup> (0.75)	-7.39 <sup>a</sup> (0.77)	-6.81 <sup>a</sup> (0.78)
SU6	0.06 <sup>a</sup> (0.02)	-0.15 <sup>a</sup> (0.04)	-0.82 <sup>a</sup> (0.05)	-1.07 <sup>a</sup> (0.07)	-0.66 <sup>a</sup> (0.09)	-0.10 (0.13)	-0.34 <sup>b</sup> (0.16)	-1.33 <sup>a</sup> (0.18)	-1.83 <sup>a</sup> (0.21)	-2.40 <sup>a</sup> (0.35)	-2.22 <sup>a</sup> (0.45)	-2.26 <sup>a</sup> (0.59)	-2.68 <sup>a</sup> (0.68)	-4.23 <sup>a</sup> (0.68)	-5.18 <sup>a</sup> (0.67)	-6.22 <sup>a</sup> (0.69)	-6.94 <sup>a</sup> (0.70)
NU6	0.10 <sup>a</sup> (0.02)	-0.05 <sup>c</sup> (0.03)	-0.65 <sup>a</sup> (0.04)	-0.96 <sup>a</sup> (0.05)	-0.90 <sup>a</sup> (0.07)	-0.71 <sup>a</sup> (0.11)	-1.19 <sup>a</sup> (0.13)	-1.95 <sup>a</sup> (0.15)	-2.63 <sup>a</sup> (0.18)	-2.26 <sup>a</sup> (0.31)	-2.33 <sup>a</sup> (0.40)	-2.65 <sup>a</sup> (0.52)	-3.24 <sup>a</sup> (0.60)	-4.68 <sup>a</sup> (0.61)	-5.57 <sup>a</sup> (0.59)	-6.51 <sup>a</sup> (0.61)	-7.28 <sup>a</sup> (0.62)
Panel (B)																	
AU6	0.01 (0.03)	-0.06 (0.06)	-0.09 (0.08)	0.05 (0.10)	0.48 <sup>a</sup> (0.12)	1.15 <sup>a</sup> (0.19)	1.77 <sup>a</sup> (0.22)	1.54 <sup>a</sup> (0.25)	2.40 <sup>a</sup> (0.29)	2.19 <sup>a</sup> (0.43)	1.60 <sup>a</sup> (0.56)	2.42 <sup>a</sup> (0.75)	3.22 <sup>a</sup> (0.86)	4.07 <sup>a</sup> (0.87)	4.26 <sup>a</sup> (0.85)	4.72 <sup>a</sup> (0.88)	5.06 <sup>a</sup> (0.90)
SU6	0.03 (0.03)	-0.01 (0.06)	-0.19 <sup>b</sup> (0.09)	0.03 (0.11)	0.66 <sup>a</sup> (0.14)	1.37 <sup>a</sup> (0.20)	1.69 <sup>a</sup> (0.24)	1.28 <sup>a</sup> (0.27)	1.73 <sup>a</sup> (0.32)	2.01 <sup>a</sup> (0.45)	1.54 <sup>a</sup> (0.59)	1.58 <sup>b</sup> (0.79)	1.94 <sup>b</sup> (0.91)	2.22 <sup>b</sup> (0.92)	1.82 <sup>b</sup> (0.90)	1.94 <sup>b</sup> (0.93)	1.73 <sup>c</sup> (0.95)
NU6	0.03 <sup>d</sup> (0.02)	-0.04 (0.04)	-0.28 <sup>a</sup> (0.06)	-0.26 <sup>a</sup> (0.07)	0.05 (0.09)	0.41 <sup>a</sup> (0.14)	0.34 <sup>b</sup> (0.17)	-0.05 (0.19)	-0.03 (0.22)	0.57 <sup>d</sup> (0.38)	-0.13 (0.50)	-0.59 (0.67)	-0.57 (0.78)	-0.51 (0.78)	-0.87 (0.77)	-0.87 (0.79)	-1.14 (0.81)
Age x100	2.16 <sup>a</sup> (0.30)	3.49 <sup>a</sup> (0.58)	0.90 (0.78)	0.98 (0.98)	3.48 <sup>a</sup> (1.24)	7.81 <sup>a</sup> (1.86)	6.86 <sup>a</sup> (2.23)	4.40 <sup>c</sup> (2.50)	4.03 (2.95)	24.73 <sup>a</sup> (3.99)	33.16 <sup>a</sup> (5.20)	47.79 <sup>a</sup> (7.70)	48.10 <sup>a</sup> (8.07)	40.85 <sup>a</sup> (8.15)	37.45 <sup>a</sup> (7.99)	33.99 <sup>a</sup> (8.26)	29.84 <sup>a</sup> (8.45)
Age <sup>2</sup> x1000	-0.19 <sup>a</sup> (0.03)	-0.27 <sup>a</sup> (0.06)	0.13 <sup>c</sup> (0.08)	0.30 <sup>a</sup> (0.09)	0.43 <sup>a</sup> (0.11)	0.40 <sup>b</sup> (0.18)	0.83 <sup>a</sup> (0.21)	1.12 <sup>a</sup> (0.24)	1.67 <sup>a</sup> (0.28)	0.52 (0.39)	-0.25 (0.51)	-1.31 <sup>c</sup> (0.69)	-0.94 (0.80)	0.19 (0.81)	0.26 (0.79)	0.89 (0.82)	1.12 (0.84)
Finc x10	0.12 <sup>a</sup> (0.02)	0.18 <sup>a</sup> (0.03)	0.11 <sup>a</sup> (0.04)	-0.10 <sup>b</sup> (0.05)	-0.88 <sup>a</sup> (0.06)	-1.72 <sup>a</sup> (0.10)	-2.06 (0.12)	-1.91 <sup>a</sup> (0.01)	-2.44 <sup>a</sup> (0.15)	-0.28 <sup>a</sup> (0.08)	-0.42 <sup>a</sup> (0.10)	-0.46 <sup>a</sup> (0.13)	-0.63 <sup>a</sup> (0.15)	-0.72 <sup>a</sup> (0.16)	-0.75 <sup>a</sup> (0.15)	-0.82 <sup>a</sup> (0.16)	-0.81 <sup>a</sup> (0.16)
Fsize x10	0.16 <sup>a</sup> (0.06)	-0.00 (0.12)	-0.42 <sup>a</sup> (0.16)	-0.37 <sup>c</sup> (0.20)	1.67 <sup>a</sup> (0.26)	3.44 <sup>a</sup> (0.39)	3.94 <sup>a</sup> (0.46)	2.69 <sup>a</sup> (0.52)	3.42 <sup>a</sup> (0.06)	3.37 (0.95)	4.45 <sup>a</sup> (1.24)	4.40 <sup>a</sup> (1.66)	4.29 <sup>b</sup> (1.92)	2.40 (1.94)	-0.20 (1.90)	-1.19 (1.96)	-3.48 <sup>c</sup> (2.01)

NOTE: Panel (A) reports simple regressions which additionally include a constant - parameter estimates are listed with standard errors in parentheses. Superscripts a,b,c,d denote significance levels of 1%, 5%, 10%, and 15% respectively. Panel (B) reports select parameters estimates - all years additionally include a constant, three region dummies, an urban dummy, a dummy for black, three educational attainment dummies, and a dummy for female headed households. Children variables are AU6=1 if all children are less than 6 years old, SU6=1 if some children are less than 6, and NU6=1 if none under six (reference group is no children).

**Table 4: Poverty Rates For Children by Select  
Family Characteristics**

	All	Black	Not Black	Female- Headed	Kids<6
<b><u>1976</u></b>					
CES, all	.164	.418	.120	.533	.192
CES, with kids	.162	.415	.119	.531	.190
CPS, all	.161	.412	.118	.527	.189
CPS, individual	.168	.427	.123	.541	.194
<b><u>1981</u></b>					
CES, all	.190	.445	.145	.529	.226
CES, with kids	.188	.441	.144	.527	.224
CPS, all	.188	.441	.144	.527	.225
CPS, individual	.172	.407	.131	.490	.206
<b><u>1985</u></b>					
CES, all	.201	.467	.154	.542	.236
CES, with kids	.199	.462	.153	.538	.234
CPS, all	.199	.462	.153	.539	.234
CPS, individual	.196	.453	.150	.531	.225

NOTES: Calculations based on the CPS - 1977, 1982 and 1985. Poverty thresholds for each family from the CPS were updated using each index above. Family income was then compared with each of these thresholds, giving four estimates of child poverty. "CES, all" refers to the average index over all CES families. "CES, with kids" is an average index for all CES families with children. "CPS, all" is an average of a predicted price index for each CPS family, while "CPS, individual" is a predicted, family-specific index.

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**Table 5: The Distribution of Children Below Poverty**

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Percent of poor children with family income:	< 50% of poverty	50-75% of poverty	75-100% of poverty
<hr/>			
<b><u>1976</u></b>			
CPS, all	.304	.334	.372
CPS, individual	.312	.316	.383
 <b><u>1981</u></b>			
CPS, all	.392	.299	.309
CPS, individual	.414	.290	.297
 <b><u>1984</u></b>			
CPS, all	.442	.282	.275
CPS, individual	.446	.282	.272

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NOTES: Calculations based on the CPS - 1977, 1982 and 1985. Poverty thresholds for each family from the CPS were updated using each index above. Family income was then compared with these thresholds, giving the ratio of the family's income to the poverty level. "CPS, all" is an average of a predicted price index for each CPS family, while "CPS, individual" is a predicted, family-specific index.

Table 6: Regression Estimates of the Effect of Educational Attainment on the CPI

	1969	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985
Panel (A)																	
LTH	-0.11 <sup>a</sup>	-0.13 <sup>a</sup>	0.05	0.32 <sup>a</sup>	1.09 <sup>a</sup>	1.82 <sup>a</sup>	2.30 <sup>a</sup>	2.26 <sup>a</sup>	2.89 <sup>a</sup>	4.32 <sup>a</sup>	4.94 <sup>a</sup>	5.50 <sup>a</sup>	6.39 <sup>a</sup>	7.12 <sup>a</sup>	6.90 <sup>a</sup>	7.41 <sup>a</sup>	6.99 <sup>a</sup>
S	(0.02)	(0.03)	(0.04)	(0.05)	(0.07)	(0.11)	(0.13)	(0.14)	(0.17)	(0.27)	(0.35)	(0.46)	(0.53)	(0.54)	(0.53)	(0.54)	(0.55)
SCO	0.08 <sup>a</sup>	0.18 <sup>a</sup>	0.20 <sup>a</sup>	0.22 <sup>a</sup>	0.00	-0.46 <sup>a</sup>	-0.58 <sup>a</sup>	-0.53 <sup>b</sup>	-0.69 <sup>a</sup>	-1.72 <sup>a</sup>	-2.53 <sup>a</sup>	-3.20 <sup>a</sup>	-3.39 <sup>a</sup>	-3.01 <sup>a</sup>	-2.65 <sup>a</sup>	-2.40 <sup>a</sup>	-1.92 <sup>a</sup>
L	(0.03)	(0.05)	(0.07)	(0.09)	(0.11)	(0.17)	(0.20)	(0.22)	(0.27)	(0.38)	(0.48)	(0.64)	(0.73)	(0.74)	(0.72)	(0.75)	(0.76)
COL	0.01	0.09 <sup>c</sup>	0.11 <sup>c</sup>	0.07	-0.36 <sup>a</sup>	-1.18 <sup>a</sup>	-1.42 <sup>a</sup>	-1.42 <sup>a</sup>	-1.73 <sup>a</sup>	-3.42 <sup>a</sup>	-4.98 <sup>a</sup>	-6.18 <sup>a</sup>	-6.69 <sup>a</sup>	-6.35 <sup>a</sup>	-6.08 <sup>a</sup>	-5.86 <sup>a</sup>	-5.32 <sup>a</sup>
	(0.02)	(0.05)	(0.06)	(0.08)	(0.10)	(0.16)	(0.19)	(0.21)	(0.25)	(0.36)	(0.46)	(0.61)	(0.70)	(0.71)	(0.70)	(0.72)	(0.73)
Panel (B)																	
LTH	-0.09 <sup>a</sup>	-0.14 <sup>a</sup>	-0.12 <sup>a</sup>	-0.03	0.31 <sup>a</sup>	0.53 <sup>a</sup>	0.66 <sup>a</sup>	0.53 <sup>a</sup>	0.62 <sup>a</sup>	1.09 <sup>a</sup>	1.51 <sup>a</sup>	1.71 <sup>a</sup>	2.15 <sup>a</sup>	2.41 <sup>a</sup>	2.42 <sup>a</sup>	2.54 <sup>a</sup>	2.33 <sup>a</sup>
S	(0.17)	(0.03)	(0.04)	(0.06)	(0.07)	(0.10)	(0.12)	(0.14)	(0.17)	(0.26)	(0.34)	(0.46)	(0.53)	(0.54)	(0.53)	(0.55)	(0.56)
SCO	0.06 <sup>b</sup>	0.13 <sup>a</sup>	0.16 <sup>b</sup>	0.18 <sup>a</sup>	0.05	-0.22	-0.28 <sup>d</sup>	-0.27	-0.34	-1.20 <sup>a</sup>	-1.83 <sup>a</sup>	-2.32 <sup>a</sup>	-2.43 <sup>a</sup>	-2.18 <sup>a</sup>	-2.02 <sup>a</sup>	-1.83 <sup>a</sup>	-1.53 <sup>b</sup>
L	(0.02)	(0.05)	(0.07)	(0.08)	(0.10)	(0.16)	(0.19)	(0.21)	(0.25)	(0.35)	(0.45)	(0.60)	(0.70)	(0.70)	(0.69)	(0.71)	(0.73)
COL	-0.04 <sup>c</sup>	-0.01	0.04	0.08	-0.03	-0.42 <sup>a</sup>	-0.50 <sup>a</sup>	-0.56 <sup>a</sup>	-0.61 <sup>a</sup>	-2.59 <sup>a</sup>	-4.02 <sup>a</sup>	-5.10 <sup>a</sup>	-5.42 <sup>a</sup>	-5.01 <sup>a</sup>	-4.89 <sup>a</sup>	-4.60 <sup>a</sup>	-4.20 <sup>a</sup>
	(0.02)	(0.05)	(0.06)	(0.08)	(0.10)	(0.15)	(0.18)	(0.20)	(0.24)	(0.34)	(0.44)	(0.59)	(0.68)	(0.69)	(0.67)	(0.70)	(0.71)

NOTE: Panel (A) reports simple regressions which additionally include a constant - parameter estimates are listed with standard errors in parentheses. Superscripts a,b,c,d denote significance levels of 1%, 5%, 10%, and 15% respectively. Panel (B) reports multiple regression parameters estimates - all years additionally include a constant, Age, Age<sup>2</sup>, Finc, Fsize, three region dummies, an urban dummy, a dummy for black, one child dummy (kid - results are similar when AU6, SU6, NU6 are used; results available on request), and a dummy for female headed households. The education variables are defined as LTHS=1 if high school dropout, SCOL=1 if completed some college only, COL=1 if college graduate or graduate degree; reference category is high school graduate.

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**Table 7: Real Educational Wage Differentials**

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**(A) Average Weekly Earnings**

	<u>High School</u> <u>Dropouts (LTHS)</u>		<u>High School</u> <u>Graduates (HS)</u>		<u>College or Greater</u> <u>(COL)</u>	
	(1)	(2)	(1)	(2)	(1)	(2)
1976	152.79	151.60	180.61	181.73	251.67	255.50
1977	152.47	151.04	187.15	188.57	253.36	257.94
1979	153.58	150.53	187.70	188.59	246.83	254.42
1980	147.50	144.51	179.49	180.22	238.90	246.78
1981	143.47	140.41	180.12	181.00	247.91	256.30
1983	145.35	142.38	180.24	181.34	259.22	267.19
1984	147.83	144.79	187.30	188.61	270.05	278.13

**(B) Weekly Earnings Differentials**

	<u>HS/LTHS</u>		<u>COL/LTHS</u>		<u>COL/HS</u>	
	(1)	(2)	(1)	(2)	(1)	(2)
1976	118.21	119.87	164.72	168.54	139.34	140.59
1977	122.75	124.85	166.17	170.78	135.38	136.79
1979	122.22	125.28	160.72	169.02	131.50	134.91
1980	121.69	124.71	161.97	170.77	133.10	136.93
1981	125.55	128.91	172.80	182.54	137.64	141.60
1983	124.00	127.36	178.34	187.66	143.82	147.34
1984	126.70	130.26	182.68	192.09	144.18	147.46

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NOTES: Average weekly earnings are calculated as total annual earnings divided by number of weeks worked. Values are in 1968 dollars for white men, age 25-64, full-time employees. Under each heading the first column is deflated by the average PI for all CES families, the second column is deflated by the relevant educational specific PI.

SOURCE: March Current Population Survey (various years)



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## Appendix 1: Expenditure items and Prices

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<u>Expenditure Item from the Consumer Expenditure Survey</u>	<u>1968-77 Price Indexes used from BLS. Listed only if it does not correspond exactly to expenditure item. (1978-85 index used, if different from 1968-77.)</u>
food at home	
food away from home	
alcohol	
tobacco	
rent	
interest on mortgages	
property taxes	
property insurance and other	property insurance premiums
repairs and replacements	
owned vacation home	homeownership
solid & petroleum fuels	fuel oil and coal
gas and electricity	
water and sewerage	
telephone and telegraph	
other household services	liscensed day care service, preschool child (average of postage, moving, and appliance and furniture repair) average of housekeeping supplies, e.g. laundry soaps, paper napkins and toilet tissue
household supplies	
household textiles	
furniture	furniture and bedding
floor coverings	
appliances	
housewares	average of dinnerware and flatware (tableware)
insurance on furnishings	property insurance premiums
other home furnishings	table lamps (lawn equipment)
clothing, men	slacks, wool (shirts)
clothing, boys	average of boys apparel items
clothing, women	dresses
clothing, girls	average of girls apparel items
footwear, men	shoes, street
footwear, women	shoes, street, pump
footwear, children	shoes, oxford
clothing, children under 2	diapers (apparel, infants and toddlers)
clothing materials	yard goods (sewing materials)
clothing upkeep	drycleaning, men's suits and women's dresses (laundry and drycleaning)

<u>Expenditure Item</u>	<u>Price Index used, if different</u>
automobile purchase	automobile purchase, new
gasoline, motor oil, etc.	gasoline
tires and tubes	
repairs and parts	auto repairs and maintenance
auto insurance	
auto registration & other	
public transportation	
hospitalized illness	hospital service charges (hospital and other medical services)
physicians services	physician's fees (services)
dental services	dentist's fees (services)
eye care	examination, prescription and dispensing of eyeglasses (eyeglasses)
drugs and medicines	
medical appliances, supplies	adhesive bandages, package (nonprescription medical equipment and supplies)
personal care services	personal care, toilet goods
personal care supplies	tv sets, portable and console
television	average of radios, tape recorders and phonograph records (sound equipment)
radio, phonograph	movie admission, adult (entertainment services)
spectator admissions	bicycle, boys (bicycles)
participant sports	film developing, color (photographic supplies and equipment)
club dues, hobbies	newspapers (reading materials)
reading	piano lessons, beginner
music*	tuition and other school fees
tuition+	school books and supplies
school books+	

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\* obtained for 1960 weights, but not for 1972.

+ obtained for 1972 weights, but not for 1960.

NOTES: (1) All prices are relative to the base year of 1967 (i.e., 1967=100). Price items that changed base years during the period 1968-1985 were converted to 1967=100. (2) Price data were obtained from editions of the Monthly Labor Review. (3) In 1983 the BLS changed the way it priced housing. As a consequence, property taxes, mortgage interest rates and property insurance have not been priced since 1983. We updated property taxes and mortgage interest rates for 1983-85 by assuming that they increased by the same percentage as the new "homeownership costs" series. Property insurance was assumed to increase by the same percentage as the series "household insurance."

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Appendix 2: Variable Means - CES samples

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	<u>1960-61</u>	<u>1972-73</u>
Families with children	.52	.44
Black	.09	.10
Age of head	47.5	47.6
Education of head < HS	.53	.41
Education of head = HS	.26	.31
Education of head > HS	.21	.28
Female headed family	.17	.20
Family size	3.2	2.9
Family income	6328	11150
Urban	.64	.62
N	13380	9243

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Source: CES - 1960-61 and 1972-73. Sample weights were used.